

CLAIMS

- 1 1. A system for effecting and monitoring a real-time process that is
2 participated in by multiple participants over a network, the system including
3 multiple components, comprising:
4 at least one participant computer with a display;
5 at least one server coupled to the at least one participant computer through
6 the network;
7 at least one memory device having stored thereon instructions, which when
8 executed by at least one of the components, causes the at least one component to:
9 periodically collect real-time data regarding the real-time process;
10 periodically update a display comprising a graphical representation
11 of a current state of the process using the real-time data;
12 receive participant inputs via the display, wherein the participant
13 inputs include changes to a the real-time data; and
14 in response to the participant inputs, update the display to reflect the
15 changes to the real-time data.

- 1 2. The system of claim 1, wherein the real-time process comprises a
2 multi-participant process conducted over the network, and wherein periodically

3 collecting real-time data comprises periodically polling the server from a network
4 browser on one of the components to receive the real-time data.

1 3. The system of claim 1, wherein the real-time process comprises a
2 multi-participant process conducted over the network, wherein the real-time data
3 includes current values of a plurality of variables, and wherein periodically
4 collecting real-time data comprises:
5 receiving a participant specification of a subset of the plurality of variables
6 to be periodically collected at a first frequency; and
7 receiving a participant specification of a second frequency at which the
8 plurality of variables that does not include the subset is collected.

1 4. The system of claim 3, wherein the first frequency is approximately
2 one collection per second, and the second frequency is a fraction of the first
3 frequency.

1 5. The system of claim 4, wherein the real-time process comprises an
2 Internet auction, wherein the plurality of variables includes offer amounts, and
3 wherein the subset includes highest offer amounts.

1 6. The system of claim 1, wherein the real-time process comprises a
2 multi-participant process conducted over the network, wherein the real-time data
3 includes current values of a plurality of variables, and wherein periodically
4 collecting real-time data comprises:
5 initially collecting real-time data at a first frequency;
6 monitoring a rate of change of the real-time data collected at sequential
7 periods;
8 changing a frequency at which real-time data is collected based upon the
9 rate of change such that a relatively high rate of change results in the frequency
10 being higher than the first frequency, and a relatively low rate of change results in
11 the frequency being lower than the first frequency.

1 7. The system of claim 6, wherein periodically collecting real-time
2 data further comprises receiving participant-input upper and lower limits on the
3 frequency.

1 8. The system of claim 2, wherein the display comprises template-
2 generated hypertext markup language (HTML) pages, and wherein the real-time
3 data is conveyed in Java.

1 9. The system of claim 2, wherein the real-time process comprises an
2 Internet multi-participant auction, and wherein the real-time data comprises bid
3 amounts and ask amounts.

1 10. The system of claim 9, wherein the display comprises a plurality of
2 objects, each of which represent a participant in the auction, wherein a relative size
3 of an object indicates a relative number of items held by a seller and a relative
4 number of items desired by a buyer, and wherein the real-time data includes the
5 relative number of items held by the seller and the relative number of items desired
6 by the buyer.

1 11. The system of claim 10, wherein the plurality of objects comprise
2 buyer objects and seller objects, wherein a relative distance of a buyer object from
3 a seller object represents a relative closeness of an asking price associated with the
4 seller object to an offer price associated with the buyer object, and wherein the real-
5 time data includes the relative closeness of the asking price associated with the
6 seller object to the offer price associated with the buyer object.

1 12. The system of claim 11, wherein the display is approximately
2 circular, and wherein the display includes concentric grid lines that represent a

3 degree to which a buyer proposal is met by a seller such that the location of objects
4 relative to the concentric grid lines indicate a quantification of an offer's progress.

1 13. The system of claim 12, wherein the relative distance is produced by
2 parametric weighting and displayed on a logarithmic scale such that changes in the
3 auction are accelerated with proximity to the center of the circle.

1 14. The system of claim 11, wherein different colors are used on
2 different objects to convey information about the objects, including:
3 whether an object is a seller object or a buyer object;
4 whether an object is associated with an ask or a bid;
5 whether an object represents a recently updated offer; and
6 whether a transaction is a consummated transaction.

1 15. The system of claim 11, wherein different sounds are used to convey
2 information, including the consummation of a transaction, and an appearance of a
3 new offer.

1 16. The system of claim 11, wherein the display is approximately
2 circular, and wherein a radial position of an object on the display conveys

3 information about the object, including a time at which a participant entered the
4 auction and length of time the participant has been in the auction.

1 17. The system of claim 11, wherein receiving participant inputs
2 includes the participant manipulating the display, wherein manipulating the display
3 comprises the participant selecting and moving an object on the display, and
4 wherein the server is sent updated information reflecting the participant input.

1 18. The system of claim 11, further comprising a cursor that is
2 manipulable on the display by the participant, wherein the instructions, when
3 executed, further cause the operating system to display information about an object
4 when the cursor is moved over the object.

1 19. The system of claim 18, wherein the information includes quantity,
2 price, length of time an offer has been available, an amount by which an offer
3 changed since the offer first appeared on the display.

1 20. The system of claim 17, wherein manipulating the display further
2 comprises the participant placing an object representing an offer on the display and
3 removing an object representing an offer from the display.

1 21. The system of claim 20, wherein manipulating the display further
2 comprises the participant moving an object representing an offer to a center of the
3 display for consummation of a transaction.

1 22. The system of claim 21, wherein the display further comprises a
2 graphical indication of an offer price that is separate from the display and a
3 graphical offer to confirm the transaction that is separate from the display.

1 23. The system of claim 11, wherein the display is approximately
2 circular, and wherein a participant displays information about multiple objects by
3 manipulating a circle of varying circumference on the display such that information
4 regarding objects that are inside the circle are displayed.

1 24. The system of claim 23, wherein the multiple objects comprise
2 multiple offers, and wherein the information regarding objects that are inside the
3 circle includes a number of offers inside the circle and a dollar amount representing
4 all of the offers inside the circle.

5 25. An interactive user interface for effecting and monitoring a real-time
6 process, wherein the interactive user interface comprises instructions that, when
7 executed, cause an operating system to:
8 periodically collect real-time data regarding the real-time process;
9 periodically update a display comprising a graphical representation of a
10 current state of the process using the real-time data;
11 receive user inputs via the display, wherein the user inputs include changes
12 to the real-time data; and
13 in response to the user inputs, update the display to reflect the changes to
14 the real-time data.

1 26. The interactive user interface of claim 25, wherein the real-time
2 process comprises a multi-participant process conducted over a network using a
3 server, and wherein periodically collecting real-time data comprises periodically
4 polling the server from a network browser to receive the real-time data.

1 27. The interactive user interface of claim 25, wherein the real-time
2 process comprises a multi-participant process conducted over a network using a
3 server, wherein the real-time data includes current values of a plurality of variables,
4 and wherein periodically collecting real-time data comprises:

5 receiving a user specification of a subset of the plurality of variables to be
6 periodically collected at a first frequency; and
7 receiving a user specification of a second frequency at which the plurality of
8 variables that does not include the subset is collected.

1 28. The interactive user interface of claim 27, wherein the first
2 frequency is approximately one collection per second, and the second frequency is
3 a fraction of the first frequency.

1 29. The interactive user interface of claim 28, wherein the real-time
2 process comprises an Internet auction, wherein the plurality of variables includes
3 offer amounts, and wherein the subset includes highest offer amounts.

1 30. The interactive user interface of claim 25, wherein the real-time
2 process comprises a multi-participant process conducted over a network using a
3 server, wherein the real-time data includes current values of a plurality of variables,
4 and wherein periodically collecting real-time data comprises:
5 initially collecting real-time data at a first frequency;
6 monitoring a rate of change of the real-time data collected at sequential
7 periods;

8 changing a frequency at which real-time data is collected based upon the
9 rate of change such that a relatively high rate of change results in the frequency
10 being higher than the first frequency, and a relatively low rate of change results in
11 the frequency being lower than the first frequency.

1 31. The interactive user interface of claim 30, wherein periodically
2 collecting real-time data further comprises receiving user-input upper and lower
3 limits on the frequency.

1 32. The interactive user interface of claim 26, wherein the display
2 comprises template-generated hypertext markup language (HTML) pages, and
3 wherein the real-time data is conveyed in Java.

1 33. The interactive user interface of claim 31, wherein the real-time
2 process comprises an Internet multi-participant auction, and wherein the real-time
3 data comprises bid amounts and ask amounts.

1 34. The interactive user interface of claim 33, wherein the display
2 comprises a plurality of objects, each of which represent a participant in the
3 auction, wherein a relative size of an object indicates a relative number of items

4 held by a seller and a relative number of items desired by a buyer, and wherein the
5 real-time data includes the relative number of items held by the seller and the
6 relative number of items desired by the buyer.

1 35. The interactive user interface of claim 34, wherein the plurality of
2 objects comprise buyer objects and seller objects, wherein a relative distance of a
3 buyer object from a seller object represents a relative closeness of an asking price
4 associated with the seller object to an offer price associated with the buyer object,
5 and wherein the real-time data includes the relative closeness of the asking price
6 associated with the seller object to the offer price associated with the buyer object.

1 36. The interactive user interface of claim 35, wherein the display is
2 approximately circular, and wherein the display includes concentric grid lines that
3 represent a degree to which a buyer proposal is met by a seller such that the
4 location of objects relative to the concentric grid lines indicate a quantification of
5 an offer's progress.

1 37. The interactive user interface of claim 36, wherein the relative
2 distance is produced by parametric weighting and displayed on a logarithmic scale
3 such that changes in the auction are accelerated with proximity to the center of the
4 circle.

1 38. The interactive user interface of claim 35, wherein different colors
2 are used on different objects to convey information about the objects, including:
3 whether an object is a seller object or a buyer object;
4 whether an object is associated with an ask or a bid;
5 whether an object represents a recently updated offer; and
6 whether a transaction is a consummated transaction.

1 39. The interactive user interface of claim 35, wherein different sounds
2 are used to convey information, including the consummation of a transaction, and
3 an appearance of a new offer..

1 40. The interactive user interface of claim 35, wherein the display is
2 approximately circular, and wherein a radial position of an object on the display
3 conveys information about the object, including a time at which a participant
4 entered the auction and length of time the participant has been in the auction.

1 41. The interactive user interface of claim 35, wherein the user is a
2 participant, and wherein receiving user inputs includes the participant manipulating
3 the display, wherein manipulating the display comprises the participant selecting

4 and moving an object on the display, and wherein the server is sent updated
5 information reflecting the user input.

1 42. The interactive user interface of claim 35, further comprising a
2 cursor that is manipulable on the display by the user, wherein the instructions,
3 when executed, further cause the operating system to display information about an
4 object when the cursor is moved over the object.

1 43. The interactive user interface of claim 42, wherein the information
2 includes quantity, price, length of time an offer has been available, an amount by
3 which an offer changed since the offer first appeared on the display.

1 44. The interactive user interface of claim 41, wherein manipulating the
2 display further comprises the user placing an object representing an offer on the
3 display and removing an object representing an offer from the display.

1 45. The interactive user interface of claim 44, wherein manipulating the
2 display further comprises the user moving an object representing an offer to a
3 center of the display for consummation of a transaction.

1 46. The interactive user interface of claim 45, wherein the display
2 further comprises a graphical indication of an offer price that is separate from the
3 display and a graphical offer to confirm the transaction that is separate from the
4 display.

1 47. The interactive user interface of claim 35, wherein the display is
2 approximately circular, and wherein a participant displays information about
3 multiple objects by manipulating a circle of varying circumference on the display
4 such that information regarding objects that are inside the circle are displayed.

1 48. The interactive user interface of claim 47, wherein the multiple
2 objects comprise multiple offers, and wherein the information regarding objects
3 that are inside the circle includes a number of offers inside the circle and a dollar
4 amount representing all of the offers inside the circle.

1 49. A method for conducting a real-time process that is participated in
2 by multiple participants over a network system, the system including multiple
3 components, comprising at least one participant computer with a display and at
4 least one server coupled to the at least one participant computer through the
5 network, the method comprising:

6 periodically collecting real-time data regarding the real-time
7 process;

8 periodically updating the display to provide a graphical
9 representation of a current state of the process using the real-time data;

10 receiving participant inputs via the display, wherein the participant
11 inputs include changes to a the real-time data; and

12 in response to the participant inputs, updating the display to reflect
13 the changes to the real-time data.

1 50. The method of claim 49, wherein periodically collecting real-time
2 data comprises periodically polling the server from a network browser on one of
3 the components to receive the real-time data.

1 51. The method of claim 49, wherein the real-time data includes current
2 values of a plurality of variables, and wherein periodically collecting real-time data
3 comprises:

4 receiving a participant specification of a subset of the plurality of variables
5 to be periodically collected at a first frequency; and
6 receiving a participant specification of a second frequency at which the
7 plurality of variables that does not include the subset is collected.

1 52. The method of claim 51, wherein the first frequency is
2 approximately one collection per second, and the second frequency is a fraction of
3 the first frequency.

1 53. The method of claim 52, wherein the real-time process comprises an
2 Internet auction, wherein the plurality of variables includes offer amounts, and
3 wherein the subset includes highest offer amounts.

1 54. The method of claim 49, wherein the real-time data includes current
2 values of a plurality of variables, and wherein periodically collecting real-time data
3 comprises:

4 initially collecting real-time data at a first frequency;
5 monitoring a rate of change of the real-time data collected at sequential
6 periods;

7 changing a frequency at which real-time data is collected based upon the
8 rate of change such that a relatively high rate of change results in the frequency
9 being higher than the first frequency, and a relatively low rate of change results in
10 the frequency being lower than the first frequency.

1 55. The method of claim 54, wherein periodically collecting real-time
2 data further comprises receiving participant-input upper and lower limits on the
3 frequency.

1 56. The method of claim 50, wherein the display comprises template-
2 generated hypertext markup language (HTML) pages, and wherein the real-time
3 data is conveyed in Java.

1 57. The method of claim 50, wherein the real-time process comprises an
2 Internet multi-participant auction, and wherein the real-time data comprises bid
3 amounts and ask amounts.

1 58. The method of claim 57, wherein the display comprises a plurality
2 of objects, each of which represent a participant in the auction, wherein a relative

3 size of an object indicates a relative number of items held by a seller and a relative
4 number of items desired by a buyer, and wherein the real-time data includes the
5 relative number of items held by the seller and the relative number of items desired
6 by the buyer.

1 59. The method of claim 58, wherein the plurality of objects comprise
2 buyer objects and seller objects, wherein a relative distance of a buyer object from
3 a seller object represents a relative closeness of an asking price associated with the
4 seller object to an offer price associated with the buyer object, and wherein the real-
5 time data includes the relative closeness of the asking price associated with the
6 seller object to the offer price associated with the buyer object.

1 60. The method of claim 59, wherein the display is approximately
2 circular, and wherein the display includes concentric grid lines that represent a
3 degree to which a buyer proposal is met by a seller such that the location of objects
4 relative to the concentric grid lines indicate a quantification of an offer's progress.

1 61. The method of claim 60, wherein the relative distance is produced
2 by parametric weighting and displayed on a logarithmic scale such that changes in
3 the auction are accelerated with proximity to the center of the circle.

1 62. The method of claim 59, wherein different colors are used on
2 different objects to convey information about the objects, including:
3 whether an object is a seller object or a buyer object;
4 whether an object is associated with an ask or a bid;
5 whether an object represents a recently updated offer; and
6 whether a transaction is a consummated transaction.

1 63. The method of claim 59, wherein different sounds are used to
2 convey information, including the consummation of a transaction, and an
3 appearance of a new offer.

1 64. The method of claim 59, wherein the display is approximately
2 circular, and wherein a radial position of an object on the display conveys
3 information about the object, including a time at which a participant entered the
4 auction and length of time the participant has been in the auction.

1 65. The method of claim 59, wherein receiving participant inputs
2 includes the participant manipulating the display, wherein manipulating the display
3 comprises the participant selecting and moving an object on the display, and
4 wherein the server is sent updated information reflecting the participant input.

1 66. The method of claim 65, wherein manipulating the display further
2 comprises the participant placing an object representing an offer on the display and
3 removing an object representing an offer from the display.

1 67. The method of claim 66, wherein manipulating the display further
2 comprises the participant moving an object representing an offer to a center of the
3 display for consummation of a transaction.

1 68. The method of claim 67, wherein the display further comprises a
2 graphical indication of an offer price that is separate from the display and a
3 graphical offer to confirm the transaction that is separate from the display.

1 69. The method of claim 59, wherein the display is approximately
2 circular, and wherein a participant displays information about multiple objects by
3 manipulating a circle of varying circumference on the display such that information
4 regarding objects that are inside the circle are displayed.

1 70. The method of claim 69, wherein the multiple objects comprise
2 multiple offers, and wherein the information regarding objects that are inside the

- 3 circle includes a number of offers inside the circle and a dollar amount representing
- 4 all of the offers inside the circle.